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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/707,894	01/21/2004	Mark C. Hakey	BUR920030116US1	1893

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EXAMINER

COLEMAN, WILLIAM D

ART UNIT PAPER NUMBER

2823

DATE MAILED: 06/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/707,894

Applicant(s)

HAKEY ET AL.

Examiner

W. David Coleman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 March 2004.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☒ Claim(s) 20 and 21 is/are allowed.
6) ☒ Claim(s) 1-3 and 5-19 is/are rejected.
7) ☒ Claim(s) 4 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 01/04; 03/04.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

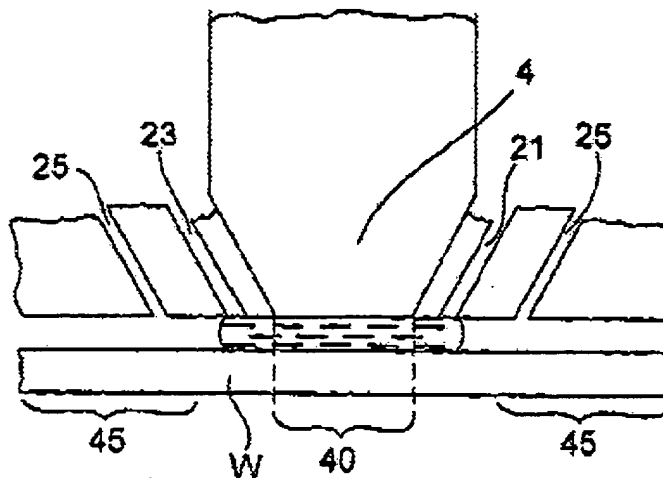
1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-3, 5-8, 10 and 12-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Coon et al., WO 2004/093159 A2.

3. Coon discloses a photolithographic sub-system and a method for projecting light as claimed. Please see FIGS. 1-9, where Coon teaches the following limitations.



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4. Pertaining to claim 1, Coon teaches a photolithographic sub system adapted for use in a photolithographic system for projecting light onto a resist covering at least a portion of a substrate, the photolithographic sub system comprising:
a container 71 having a membrane 40 which has optical properties suitable for light transmission during a lithographic process; and
fluid substantially devoid of contaminants, the fluid being fully contained within the container such that the container prevents the fluid from contacting a lens and the resist (the resist is not numbered).
5. Pertaining to claim 2, Coon teaches a photolithographic sub system according to claim 1, wherein the container includes:
a top layer that is substantially transparent to light; and a bottom layer that is substantially transparent to the light.
6. Pertaining to claim 3, Coon teaches a photolithographic sub system according to claim 2, wherein:
the top layer has an absorption of less than about twenty percent of the light; and
the bottom layer has an absorption of less than about twenty percent of the light.
7. Pertaining to claim 5, Coon teaches a photolithographic sub system according to claim 1, wherein the container is a compliant container (please note that the surface tension of the water helps create a compliant container).

8. Pertaining to claim 6, Coon teaches a photolithographic sub system according to claim 1, wherein the fluid is a liquid having a refractive index greater than the refractive index of air.

9. Pertaining to claim 7, Coon teaches a photolithographic sub system according to claim 1, wherein the container is shaped as one of a pillow shape and a cylindrical shape (the surface tension of the liquid creates the pillow shape).

10. Pertaining to claim 8, Coon teaches a photolithographic sub system according to claim 1, wherein the fluid is substantially transparent to the light.

11. Pertaining to claim 10, Coon teaches a photolithographic sub system according to claim 1, wherein the fluid is comprised of water, deionized water, or a liquid based on perfluoropolyether (PFPE).

12. Pertaining to claim 12, Coon teaches a photolithographic sub system according to claim 1, wherein the fluid is a purified fluid.

13. Pertaining to claim 13, Coon teaches a photolithographic sub system according to claim 1, wherein the container includes a collar which conforms to a lens of the photolithographic system.

14. Pertaining to claim 14, Coon teaches a photolithographic sub system according to claim 1, wherein the container includes:

- a top layer;
- a bottom layer; and
- a seam defining a junction of the top layer to the bottom layer;

the seam being located around a periphery of the container so as to not interfere with light transmitted through the top layer and the bottom layer.

15. Pertaining to claim 15, Coon teaches a photolithographic system according to claim 2, wherein the bottom layer is sized to cover at least a portion of the resist; and the top layer is shaped to the contour of the lens.

16. Pertaining to claim 16, Coon teaches a photolithographic system for projecting light onto a resist covering at least a portion of a substrate, the photolithographic system comprising:

- a lens;
- a container containing a fluid, the container being located between the lens and resist and comprising a top layer that is substantially transparent to the light; a bottom layer that is substantially transparent to the light; and
- at least one side attaching the top layer to the bottom layer.

Pertaining to claim 17, Coon teaches a photolithographic system according to claim 16, wherein:

the top layer, the bottom layer and the at least one side are comprised of the same material.

Claim Rejections - 35 USC § 103

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

18. Claims 9, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coon et al., PCT International Publication Number WO 2004/093159 A2.

Coon teaches a photolithographic system substantially as claimed. However, Coon fails to disclose the index of refraction of the various claimed materials.

19. Given the teaching of the references, it would have been obvious to determine the optimum thickness, temperature as well as condition of delivery of the layers involved. See *In re Aller, Lacey and Hall* (10 USPQ 233-237) "It is not inventive to discover optimum or workable ranges by routine experimentation. Note that the specification contains no disclosure of either the critical nature of the claimed ranges or any unexpected results arising therefrom. Where patentability is said to be based upon particular chosen dimensions or upon another variable recited in a claim, the Applicant must show that the chosen dimensions are critical. *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Any differences in the claimed invention and the prior art may be expected to result in some differences in properties. The issue is whether the properties differ to such an extent that the difference is really unexpected. *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986)

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Appellants have the burden of explaining the data in any declaration they proffer as evidence of non-obviousness. *Ex parte Ishizaka*, 24 USPQ2d 1621, 1624 (Bd. Pat. App. & Inter. 1992).

An Affidavit or declaration under 37 CFR 1.132 must compare the claimed subject matter with the closest prior art to be effective to rebut a prima facie case of obviousness. *In re Burckel*, 592 F.2d 1175, 201 USPQ 67 (CCPA 1979).

20. Claims 11 rejected under 35 U.S.C. 103(a) as being unpatentable over Coon et al., PCT International Publication Number WO 2004/093159 A2 in view of Yeo et al, U.S. Patent Application Publication No: US 2005/0036183 A1.

Coon discloses a photolithographic system and process substantially as claimed. However, Coon fails to disclose the following limitations.

21. Pertaining to claim 11, Coon fails to teach a photolithographic sub system according to claim

2, wherein the top layer and the bottom layer are comprised of one of an amorphous fluoropolymer and a fluoroplastic comprised of tetrafluoroethylene, hexafluoropropylene, and vinylidene fluoride. Yeo teaches a photolithographic sub system according to claim

2, wherein the top layer and the bottom layer are comprised of one of an amorphous fluoropolymer and a fluoroplastic comprised of tetrafluoroethylene, hexafluoropropylene, and vinylidene fluoride (see [0034] for PFPE). In view of Yeo, it would have been obvious to one of ordinary skill in the art to incorporate the limitations of Yeo into the Coon photolithographic sub-system because ferfluoropolyether can be an alternate for water (see [0034]).

Objections

22. Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Allowable Subject Matter

23. Claims 20 and 21 allowed.

24. The following is an examiner's statement of reasons for allowance: the prior art does not teach a projection light method where the container containing the liquid does not contact the lens or photoresist.

25. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

26. Any inquiry concerning this communication or earlier communications from the examiner should be directed to W. David Coleman whose telephone number is 571-272-1856.

The examiner can normally be reached on Monday-Friday 9:00 AM - 5:30 PM.

27. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 571-272-1855. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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28. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'W. David Coleman', enclosed within a large, loopy, handwritten 'C' or 'D' shape.

W. David Coleman
Primary Examiner
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WDC